AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

Claim 1 (currently amended): A device for producing a reducing gas, comprising:

an inlet, a fuel injector, ~~and~~ a catalytic zone comprising an oxidation catalyst and a reforming catalyst, an outlet, ~~wherein the catalytic zone comprises an oxidation catalyst and a reforming catalyst~~, and a reservoir comprising a fuel, wherein said reservoir is in fluid communication with said fuel injector,

wherein said fuel injector is configured to inject fuel upstream from said catalytic zone into at least a portion of an oxygen containing gas stream flowing from said inlet to said outlet and through said catalytic zone such that ~~upstream from said catalytic zone to provide~~ rich and lean zones are formed in said gas stream, and wherein said injected fuel ~~when said gas stream~~ flows through said catalytic zone,

wherein said fuel injector is configured to inject a sufficient amount of fuel to form a rich zone in said gas stream such that as the rich zone flows through the catalytic zone, a portion of the injected fuel in the rich zone is oxidized on the oxidation catalyst and at least a portion of the remaining injected fuel in the rich zone is reformed on the reforming catalyst, thereby producing a reducing gas stream.

Claim 2 (canceled)

Claim 3 (currently amended): A device according to claim [[2]] 1, ~~further comprising a~~ wherein said reservoir ~~comprising~~ comprises a hydrocarbon fuel, ~~wherein said reservoir is in fluid communication with said fuel injector,~~ and wherein said reducing gas stream comprises H_2 and CO.

Claim 4 (currently amended): A device according to claim [[3]] 1, wherein the fuel injector is ~~adapted to introduce the hydrocarbon~~ configured to inject fuel discontinuously into said ~~to an~~

oxygen containing gas stream, ~~discontinuously to form~~ thereby forming alternating rich and lean zones in said gas stream flowing through said catalytic zone.

Claim 5 (currently amended): A device according to claim [[3]] 1,

wherein the fuel injector is ~~adapted to introduce the hydrocarbon~~ configured to inject fuel ~~to~~ into a portion of said [[an]] oxygen containing gas stream essentially continuously [[to]], thereby [[form]] forming a rich zone in said gas stream flowing through said catalytic zone, and wherein the device is configured such that said rich zone flows through a portion of the catalytic zone and the portion of the catalytic zone through which the rich zone flows varies over time.

Claim 6 (original): A device according to claim 3, wherein the hydrocarbon fuel is selected from the group consisting of gaseous, liquid, oxygenated, nitrogen containing, and sulfur containing hydrocarbons.

Claim 7 (currently amended): A device according to claim 3, wherein the hydrocarbon fuel is ~~selected from the group consisting of~~ gasoline ~~and diesel fuel~~.

Claim 8 (original): A device according to claim 1, wherein said catalytic zone comprises at least one monolithic structure.

Claim 9 (original): A device according to claim 8, wherein the monolithic structure comprises a plurality of channels.

Claim 10 (original): A device according to claim 8, wherein the monolithic structure comprises metal.

Claim 11 (original): A device according to claim 8, wherein the monolithic structure comprises a ceramic material.

Claim 12 (currently amended): A device according to claim 1, configured such that when said rich and lean zones [[of an]] in said oxygen containing gas stream flow through the catalytic zone, the temperature of the catalytic zone is maintained at about 450 to about 1000° C.

Claim 13 (original): A device according to claim 4, wherein the fuel injector is adapted to inject fuel with a rich-lean periodicity of about 0.1 to about 10 seconds, wherein the rich portion of a rich-lean period extends over about 10 to about 90% of said rich-lean period.

Claim 14 (original): A device according to claim 1, further comprising a heater or heat exchanger upstream from the catalytic zone, wherein said heater or heat exchanger is in gas flow communication with the catalytic zone.

Claim 15 (currently amended): A device according to claim 1, further comprising a pre-oxidation catalyst downstream from said fuel injector and upstream from said catalytic zone, wherein said pre-oxidation catalyst comprises an oxidation catalyst, wherein said fuel injector is configured to introduce fuel [[to]] into at least a portion of [[an]] said oxygen containing gas stream upstream from said pre-oxidation catalyst, such that when said gas stream flows through the pre-oxidation catalyst, at least a portion of the fuel introduced by the fuel injector is oxidized, thereby heating the gas stream.

Claim 16 (original): A device according to claim 15, wherein said device further comprises a mixer downstream from said pre-oxidation catalyst and upstream from said catalytic zone, wherein the device is configured such that a portion of the fuel introduced by the fuel injector and flowing through said pre-oxidation catalyst is vaporized, wherein said mixer is configured to mix said vaporized fuel in said gas stream in a predominantly radial fashion.

Claim 17 (original): A device according to claim 16, wherein the pre-oxidation catalyst is coated on the inner walls of a fraction of the channels of a monolithic catalyst structure.

Claim 18 (original): A device according to claim 17, wherein said fraction is about 20 to about 80%.

Claims 19-39 (canceled)

Claim 40 (currently amended): A process for producing a reducing gas, comprising:

introducing [[a]] fuel into at least a portion of a gas stream comprising O_2 ~~, thereby creating~~ such that rich and lean zones are formed in said gas stream, wherein said fuel is injected upstream from a catalytic zone comprising an oxidation catalyst and a reforming catalyst, wherein said injected fuel flows through said catalytic zone, and wherein a portion of the injected fuel in a rich zone is oxidized on the oxidation catalyst and wherein at least a portion of the remaining fuel in the rich zone is reformed on the reforming catalyst, thereby producing a reducing gas.

Claim 41 (canceled)

Claim 42 (currently amended): A process according to claim [[41]] 40, wherein said fuel is a hydrocarbon fuel and said reducing gas comprises H_2 and CO.

Claim 43 (currently amended): A process according to claim [[42]] 40, wherein said hydrocarbon fuel is introduced to the gas stream discontinuously, thereby forming ~~to form~~ alternating rich and lean zones in said gas stream flowing through said catalytic zone.

Claim 44 (currently amended): A process according to claim [[42]] 40, wherein said hydrocarbon fuel is introduced to a portion of the gas stream essentially continuously, thereby forming ~~to form~~ a rich zone in said gas stream flowing through said catalytic zone, wherein said rich zone of the gas stream flows through a portion of said catalytic zone, wherein said portion of the catalytic zone is varied over time.

Claim 45 (original): A process according to claim 40, wherein lean zones do not comprise fuel.

Claim 46 (original): A process according to claim 40, wherein lean zones comprises fuel at an equivalence ratio less than 1.

Claim 47 (original): A process according to claim 40, wherein the temperature of the catalytic zone is maintained at about 450 to about 1000° C.

Claim 48 (currently amended): A ~~device~~ process according to claim 43, wherein the fuel is introduced with a rich-lean periodicity of about 0.1 to about 10 seconds, and wherein a rich period extends over about 10 to about 90% of said rich-lean period.

Claim 49-65 (canceled)

Claim 66 (new): A device according to claim 3, wherein the hydrocarbon fuel is diesel fuel.

Claim 67 (new): A device according to claim 1, further comprising a controller, wherein the injection of fuel is controlled as a function selected from the group consisting of the flow rate of said oxygen containing gas stream, the oxygen concentration in said oxygen containing gas stream, the desired reductant level at said outlet, or the temperature of said oxygen containing gas stream.

Claim 68 (new): A device according to claim 5, further comprising a controller, wherein the injection of fuel is controlled as a function selected from the group consisting of the flow rate of said oxygen containing gas stream, the oxygen concentration in said oxygen containing gas stream, the desired reductant level at said outlet, or the temperature of said oxygen containing gas stream.

Claim 69 (new): A process according to claim 40, wherein fuel injection is controlled as a function selected from the group consisting of the flow rate of said oxygen containing gas stream,

the oxygen concentration in said oxygen containing gas stream, the desired reductant level in said reducing gas, or the temperature of said oxygen containing gas stream.

Claim 70 (new): A process according to claim 44, wherein fuel injection is controlled as a function selected from the group consisting of the flow rate of said oxygen containing gas stream, the oxygen concentration in said oxygen containing gas stream, the desired reductant level in said reducing gas, or the temperature of said oxygen containing gas stream.